



An Updated Checklist of Butterflies (Lepidoptera: Rhopalocera) from Tsirang district, Bhutan

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General Note



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ABSTRACT

The study was carried out at Tsirang District at Southern Bhutan during April 2015 to December 2015 for 7 months. The aim of the study was to collect the baseline data on the butterfly diversity from the district to evaluate the species diversity and of conservation importance. Twelve study sites were identified and recorded the butterfly communities in the area. During the study, 241 species belongs to 131 genera under 5 families were recorded. The family Nymphalidae was the most common (44 %, n=106), followed by Lycaenidae (20.3%, n= 49), Hesperidae (14.9%, n=36), Pieridae (12.9%, n= 31) and lowest Papilionidae (7.9 %, n=19) in the study area. Among which thirty-two species recorded are protected in India under various schedules of Indian Wildlife (Protection) Act of 1972, but none of these species are protected under Forest and Nature Conservation Act (1995) or Forest and Nature Conservation Rules of Bhutan (2006).

Keywords: Baseline data, Butterfly, Bhutan, Conservation, Species diversity, Tsirang.

1. INTRODUCTION

Bhutan as part of Eastern Himalayan region along with central Nepal, North Bengal, Sikkim and Arunachal Pradesh has rich and diverse biodiversity. It is the transition zone between Indian, Indo-Malayan and Indo-Chinese biogeographic regions. The area is considered as most humid part of the Himalaya because it receives south west monsoon winds from the Bay of Bengal. The average annual rainfall ranges from 1000 mm in the temperate central region to 7800 mm in the tropical humid southern part of country. Major vegetation includes orchids, woody climbers, wild banana, tree ferns, screw pines (*Pandanus sp.*), rhododendrons, laurels and conifers which gives opportunity to varied diversity of butterfly fauna (Kehimkar2008).

Butterflies, around 18,000 species are estimated to be there in the world and India alone has recorded 1318 species (Varshney & Smetacek 2015) of which 835 species are present in NE India (Wynter-Blyth, 1957). Likewise, Nepal has recorded 640 species (Smith, 1996; 2006), but still, very little is known about butterflies of Bhutan. It is expected to have about 800-900 species of butterflies (Vander Poel and Wangchuk, 2007) but recent review by Singh and Chib (2015) gives the presence of 670 butterfly species in Bhutan.

In Tsirang and surrounding districts, few studies on butterflies has been conducted in the past. Singh (2012) reported 213 species of butterflies from Kerabari, lowland forest of Sunkosh river in Dagana district. The survey was the part of the environment impact assessment studies undertaken on a proposed dam Kerabari (Bhutan), under the Sankosh Hydro-electric Power Project. Nidup *et al*, (2014) and Nidup (2015) reported presence of a total 181 species of butterflies from Royal Manas National Park (RMNP), Sarpang district. Dorji (2014) reported 80 species of butterflies from Phobjikha valley, Wangduephodrang district. Some recent publications on butterflies of Tsirang district are Singh and Chib (2014) which reported from 125 species and Singh (2014) documented 116 species of butterflies from Mendrelgang division and Dzamling Norzoed Community Forest at Barsong division of Tsirang respectively. In the present communication, we tried to update the checklist on the butterflies of Tsirang district, Bhutan.

2. MATERIALS AND METHODS

Study Area: Tsirang district situated at southern foothills of the Bhutan Himalaya. Tsirang covers an area of 638.3 km² and altitude ranges from 400m to 2000m towards north. 58% of the area is covered by broadleaf and chir-pine forest. It is the only district in Bhutan without a protected area. The district is surrounded by Wangduephodrang at north; Sarpang at south and east; and Dagana at west. Tsirang shows subtropical vegetation at lower altitudes and temperate forest towards the north. Vegetation mainly includes broadleaf forest species and chirpine species.

Sampling: Specimens of the butterflies were caught and photographed by using butterfly nets and camera (Canon EOS 70D with Canon-EF 100mm f/2.8L Macro IS USM Lens) during regular monitoring of the total butterfly fauna throughout Tsirang district from April 2015 to December 2015. A total of 36 sampling surveys were undertaken at 16 sites. Broadly, 5 seasons April to May (spring), June (pre-monsoon), August (Monsoon), September to November (Post-monsoon) and December (winter)] were also identified for the survey. Samplings were carried out every Sundays (36 days) throughout the day from 09:00 hr. until 17:00-18:00 hr. But the sampling hours varied from 4-9 hr. per day, being less during monsoon and winter seasons (August, 3-4 hr./day; April-May-June, 7-8 hr./day; September-December, 5-6 hr./day). Thus, a total of ca. 188 hrs. of sampling was carried out during the entire study period. The collecting sites are listed alphabetically below with short descriptions. The numbers in bracket (#) corresponds to places on the map. The geographical locations of the collecting sites were obtained using GPS device (Garmin Etrex 20x) or using Google maps (<http://maps.google.com/>).

List of sampling sites(Fig A): Barsong (#S4) –agricultural field close to forest (26° 56' 21.03" N & 90° 4' 51.909" E, altitude 788 m a.s.l.); **Beteni (#S8)** –close to agriculture field which practice traditional methods of agriculture (26° 56' 47.944" N & 90° 10' 16.172" E, altitude 1670 m a.s.l.); **Burichu (#S1)** –close to river bed (27° 1' 56.291" N & 90° 4' 30.712" E, altitude 341 m a.s.l.); **Damphu(#S12)** –close to human settlement, chirpine forest nearby (27° 0' 30.672" N & 90° 7' 16.654" E, altitude 1549 m a.s.l.); **Darachu (#S7)** –a trail inside the broad leaved tropical forest, area is covered with fog most of the time (26° 56' 39.455" N & 90° 12' 14.014" E, altitude 1980 m a.s.l.); **DzamlingNorzoed Community Forest (#S16)** – trail inside the broad leaved tropical forest (26° 57' 9.371" N & 90° 5' 24.082" E, altitude 1024 m a.s.l.); **Kikhorthang (#S13)** –close to human settlement, open ground (27° 0' 23.706" N & 90° 6' 54.619" E, 1627 m a.s.l.); **Manidara (#S3)** – roadside trail both the sides surrounded by forest (26° 56' 36.658" N & 90° 6' 23.007" E, 1304 m a.s.l.); **Sankosh (#S5)** - riverbed covered with wet sand and nearby thick forest (26° 56' 37.18" N & 90° 3' 52.678" E, 506 m a.s.l.); **Salami (#S10)** – close to agricultural field and stream (27° 0' 39.035" N & 90° 7' 55.261" E, 1377 m a.s.l.); **Semjong (#S15)** – close to forest stream (27° 1' 33.859" N & 90° 9' 6.375" E, 861 m a.s.l.); **Tashipang (#S2)** –inside the orange orchard surrounded by bamboo and wild banana (26° 57' 0.504" N & 90° 6' 50.795" E, 1233m a.s.l.); **Thangray (#S6)** – roadside vegetation on Tsirang-Sarpang Highway (26° 56' 58.135" N & 90° 11' 46.107" E, 1922m a.s.l.); **Tsholingkhar (#S14)** –below 20 m of the Tsirang-Wangdue Highway

(27° 0' 55.544" N & 90° 6' 37.933" E, 1239 m a.s.l.); **Tsirangtoe (#S9)** - agricultural field (27° 1' 56.377" N & 90° 7' 48.298" E, 1099 m a.s.l.); **Upper Salami (#S11)** - agricultural field (27° 0' 36.162" N & 90° 9' 22.683" E, 1342 m a.s.l.).

Butterfly Identification: Butterflies were identified based on photographs, voucher specimens collected and using literatures available on butterflies (Evans, 1932; Wynter-Blyth, 1957; Kehimkar, 2008, 2016). Expert's help was also sought for the identification of taxonomically difficult taxon; Lycaenidae and Hesperidae. The species which are doubtful for their identity are marked as (?) in the checklist (Appendix A). The classification follows after Varshney and Smetacek (2015).

Data analysis: The occurrence status was decided on number of encounters of the species in the study sites: Very Rare (VR) – 1 to 2 sightings; Rare (R) – 3 to 4 sightings; Uncommon (UC) – 5 to 10 sightings; Common (C) – 11 to 16 sightings in study sites (Fig C). This status does not correlate to the entire geographical distribution status of the corresponding species.

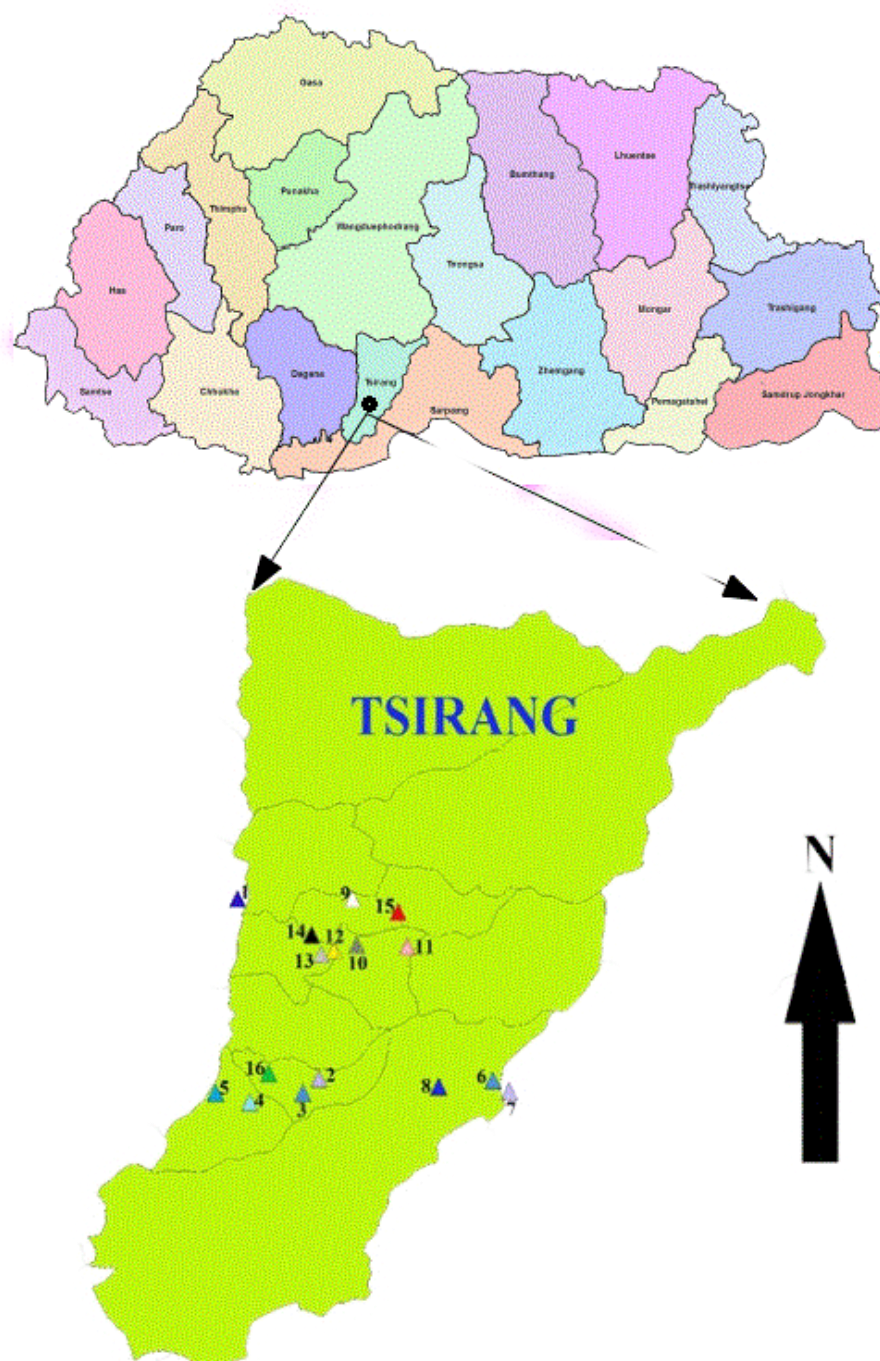


Figure A Map of study area, Tsirang district (Bhutan) with sampling sites.

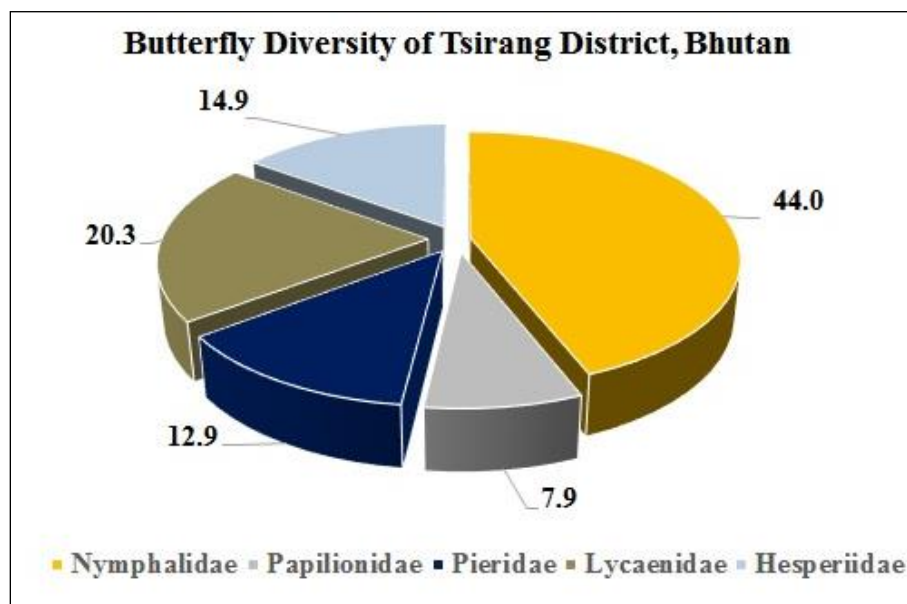
Table A Family composition of the butterflies recorded from Tsirang

| Sr. No. | Family | Sub family | No. of Sp. | % | Status | | | | IWPA 2002 | | |
|---------|--------------|------------|------------|------------|-----------|-----------|------------|-----------|-----------|-----------|----------|
| | | | | | VR | R | UC | C | I | II | IV |
| 1 | Nymphalidae | 11 | 106 | 44.0 | 10 | 14 | 48 | 34 | 3 | 13 | 2 |
| 2 | Papilionidae | 1 | 19 | 7.9 | 0 | 0 | 11 | 8 | 0 | 0 | 0 |
| 3 | Pieridae | 2 | 31 | 12.9 | 2 | 2 | 14 | 13 | 0 | 3 | 1 |
| 4 | Lycaenidae | 6 | 49 | 20.3 | 3 | 11 | 23 | 12 | 3 | 5 | 0 |
| 5 | Hesperiidae | 3 | 36 | 14.9 | 3 | 6 | 20 | 7 | 0 | 1 | 1 |
| | Total | 23 | 241 | 100 | 18 | 33 | 116 | 74 | 6 | 22 | 4 |

3. RESULTS AND DISCUSSION

The field study resulted in the recording of 241 butterfly species belonging to 131 genera under 5 families from various habitat types in Tsirang District of Bhutan. A complete checklist of species is given in Appendix A. Of these, only 165 species are shared with Singh and Chib (2014) and Singh (2014) from Tsirang district earlier. The present checklist provides additional records of 76 species to the known checklist of Tsirang's butterfly (Singh and Chib 2014; Singh 2014). Out of the five families Nymphalidae was the most common (44 %, n=106), followed by Lycaenidae (20.3%, n= 49), Hesperiidae (Skippers) (14.9%, n=36), Pieridae (12.9%, n= 31) and lowest Papilionidae (7.9 %, n=19) in the study area (Fig B). This could be due to Nymphalidae being largest family and Papilionidae being the lowest in species richness. Similar studies in Bhutan and other neighbouring countries found that Nymphalidae ranked the highest in species richness followed by Lycaenidae (Nidup *et al.* 2014; Kasangaki *et al.* 2012; Majumder *et al.* 2012; Sarma *et al.* 2012; Singh 2012; Tiple 2012; Sundufu and Dumbuya 2008). While, the least common family varied in different studies, for instance Pieridae was the least common family (Majumder *et al.* 2012), Papilionidae (Kasangaki *et al.* 2012; Tiple, 2012) and Hesperiidae (Nidup *et al.* 2014; Sarma *et al.* 2012; Singh, 2012; Ramesh *et al.* 2010).

Significant species which are rare and important butterfly species were recorded during the survey in Tsirang. Of the 241 species recorded from Tsirang district 32 species- Nymphalidae (18 sp.), Lycaenidae (8 sp.), Pieridae (4 sp.) and Hesperiidae (2 sp.) are listed in the various schedules of the Indian Wildlife (Protection) Act of 1972- (Appendix A: † = Schedule I, IW(P) Act ; ‡ = Schedule II, IW(P) Act; § = Schedule IV, IW(P) Act).The status of these butterfly species are so far not evaluated in Bhutan and none of these species are listed in the protected list of Forest and Nature Conservation Act, 1995 or Forest and Nature Conservation Rules of Bhutan, 2006.

**Figure B** Butterfly diversity of Tsirang District, Bhutan

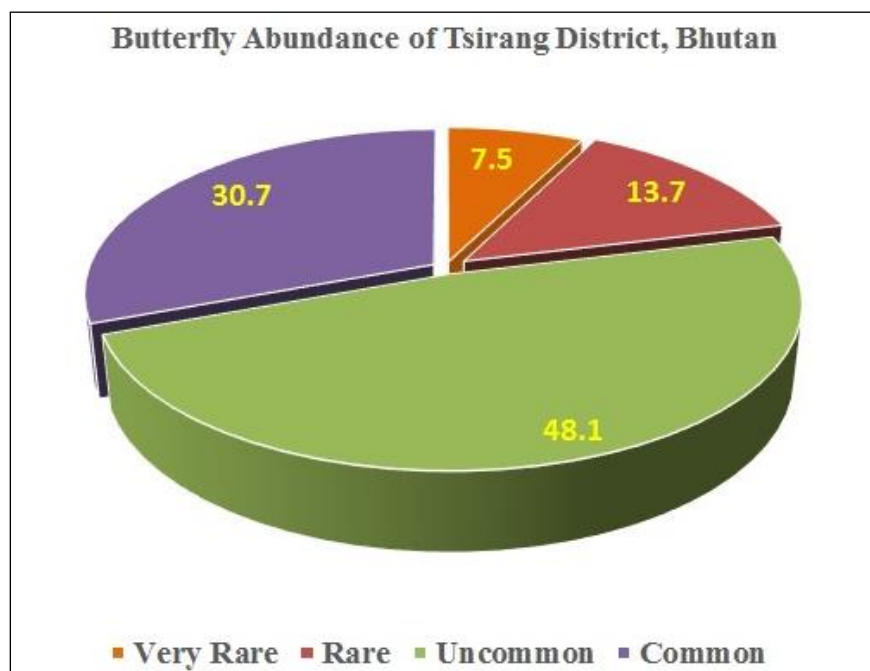


Figure C Butterfly abundance of Tsirang district, Bhutan

Sap feeding butterflies: All the butterflies possess proboscis which restricts them to feed on liquid diet usually nectars unlike their caterpillars. Butterflies mainly prefers a diet of nectar which contains 15-30% of simple sugars economical to feed upon, due to the greater energy exhausted on sucking sticky solutions through narrow proboscis (Kingsolver, 1985). Apart from butterflies feeding on nectars, they are also found feeding on pollen, over-ripe fruits, decaying animal carcasses, refuse and manures (de Niceville, 1886; Peile, 1937; Wynter-Blyth 1957; Ezzeddine and Matter, 2008). Thus, many Lepidopterists used many food sources of butterfly as baits to capture them (de Niceville, 1886; Peile, 1937; Woodhouse, 1950). Norris (1935) also mentions that sap exudates from injured tree bark attracts several species of Nymphalid butterflies, and by feeding on those liquids become completely intoxicated and unable to fly.

During the present study, several species of Nymphalidae butterflies were found feeding on the sap exudes of Orange tree (*Citrus sp.* Rutaceae) (Irungbam *et al.* 2016). In Australia, Satyrine (Nymphalidae) butterflies are found feeding on sap of *Eucalyptus grandis* (Myrtaceae) (Hawkeswood and Dunn 2009). Similarly, in Columbia, Nymphalidae butterfly were seen feeding on sap exudate by various species of plants like *Persea americana* (Lauraceae), *Eucalyptus globulus* (Myrtaceae), *Salix humboldtiana* (Salicaceae), *Sapindus saponaria* (Sapindaceae), *Alchornea bogotensis* (Euphorbiaceae), *Persea gratissima* (Lauraceae), *Quercus sp.* (Fagaceae) and *Citrus sp.* (Rutaceae) (Salazar-E, 2013). And in Indian Himalaya, studies found that sap feeding Nymphalidae butterfly; *Sephisa dichroa* and *Charaxes solon* found feeding on flowers of *Prunus cerasoides* (Rosaceae) and *Lantana camara* (Verbenaceae) which is a shift from sap feeding to flower nectar (Bhuyan *et al.* 2014). Thus, it will be interesting to investigate the butterflies which are feeding on the sap exudes of plants other than *Citrus sp.* in Bhutan. Understanding on the nectar source of the butterflies will help us to improve the reforestation programs to improve butterfly population in the different parts of the country.

4. CONCLUSION

The present study provides the butterfly diversity of Tsirang district. The result of this study can also be used to make steps forward on the conservation of natural habitat for lepidopteran diversity. Hence, thorough surveys with long term monitoring programs will help to categorize the status of the species with the help of IUCN categories for the conservation and management of biodiversity.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A: Checklist of the butterflies recorded from Tsirang district

[Abbreviations used: IWPA = Indian (Wildlife) Protection Act, 2002; (+) = Schedule I, IWPA 2002; (¥) = Schedule II, IWPA 2002; (#) = Schedule IV, IWPA 2002; C = Common; UC = Uncommon; R = Rare; VR = Very Rare; (+) = Recorded]

| Sr. No. | Species | Survey localities in the study area | | | | | | | | | | | | | | | | IWPA 2002 | Status |
|---------|--|-------------------------------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----------|--------|
| | | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | | |
| A | Family: Nymphalidae | | | | | | | | | | | | | | | | | | |
| I | Subfamily: Apaturinae | | | | | | | | | | | | | | | | | | |
| 1 | <i>Chitoria sordidasordida</i> Moore, 1865 | | + | | + | | | | | | | | | | | | | ¥ | VR |
| 2 | <i>Euripus nycteliusnyctelius</i> Doubleday, 1845 | | | + | | | + | | | | | | | | | | + | | R |
| 3 | <i>Heronamarathusmarathus</i> Doubleday, 1848 | | + | + | | + | + | | | + | | + | + | | + | + | + | | UC |
| 4 | <i>Hestinanamanama</i> Doubleday, 1844 | | + | + | + | + | + | + | + | | + | + | | + | + | + | | | C |
| 5 | <i>Hestina persimilis</i> Westwood, 1850 | | | + | | | + | | | | | | | | | | | ¥ | VR |
| 6 | <i>Mimathyma ambicanamouna</i> Doubleday, 1845 | | + | + | + | + | + | | + | | | + | | | | | | | UC |
| 7 | <i>Mimathyma chevana</i> Moore, 1865 | | | + | | | + | | | | | | | | | | | ¥ | VR |
| 8 | <i>Rohanaparisatisparisatis</i> Westwood, 1850 | | | + | + | + | + | | + | | | + | | | | | + | | UC |
| II | Subfamily: Biblidinae | | | | | | | | | | | | | | | | | | |
| 9 | <i>Ariadne nepallidors</i> Fruhstorfer, 1899 | | | + | + | + | + | | + | | + | + | | | | | | | UC |
| 10 | <i>Ariadne merione</i> Cramer, 1777 | | + | | | | | + | | | | | + | + | | + | | | UC |
| III | Subfamily: Charaxinae | | | | | | | | | | | | | | | | | | |
| 11 | <i>Charaxes bernardus</i> Fabricius, 1793 | | + | | + | + | | | + | | | | | + | | | | | UC |
| 12 | <i>Polyura athamasathamas</i> Drury, 1770 | | + | + | + | + | + | + | + | + | + | + | + | | | + | + | | C |
| IV | Subfamily: Cyrestinae | | | | | | | | | | | | | | | | | | |
| 13 | <i>Cyrestis thyodamas thyodamas</i> Doyere, 1840 | | + | + | + | + | + | + | + | + | + | + | + | | + | + | + | | C |
| 14 | <i>Dichorhaganesimachus nesimachus</i> Doyere, 1840 | | | + | | | | | | | | | | | | | + | | VR |
| 15 | <i>Pseudergolis wedah wedah</i> Kollar, 1844 | | + | + | + | + | + | | | | | + | | + | | + | + | | UC |
| 16 | <i>Stibochironicea nicaea</i> Gray, 1846 | | + | + | | + | + | | + | + | + | + | + | | | + | + | | C |
| V | Subfamily: Danaidae | | | | | | | | | | | | | | | | | | |
| 17 | <i>Danaus chrysippus chrysippus</i> Linnaeus 1758 | | + | + | + | + | + | | + | + | + | + | + | | + | + | + | | C |
| 18 | <i>Danaus genutia</i> Cramer 1779 | | | + | + | + | + | | + | + | | + | + | + | + | + | + | | C |
| 19 | <i>Euploea algea deione</i> Westwood 1848 | | | + | + | + | | + | + | | + | + | + | | + | | | | UC |
| 20 | <i>Euploea core core</i> Cramer 1780 | | | | + | + | | | + | | + | + | | | | + | | | UC |
| 21 | <i>Euploea mulciber mulciber</i> Cramer 1777 | | + | + | | + | + | | + | + | + | + | + | + | | | + | + | C |
| 22 | <i>Parantica aglae melanoides</i> Moore 1883 | | + | + | | + | + | | + | + | + | + | + | + | + | + | + | | C |
| 23 | <i>Parantica melaneus plataniston</i> Fruhstorfer 1910 | | + | + | + | + | + | | + | | + | + | | + | + | | + | | UC |
| 24 | <i>Parantica sita</i> Kollar 1844 | | | + | | + | + | | + | + | | + | + | + | + | + | + | | C |
| 25 | <i>Tirumala limniace</i> Moore 1880 | | | + | + | + | + | + | + | | + | + | + | | | | | | UC |
| 26 | <i>Tirumala septentrionis</i> Butler 1874 | | | + | | | + | | | | | | | + | | | | | R |
| VI | Subfamily: Heliconiinae | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| 27 | <i>Acraea issoria</i> Hubner 1819 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 28 | <i>Argyreus hyperbius</i> Linnaeus 1763 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 29 | <i>Cethosia biblis</i> Fruhstorfer 1912 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 30 | <i>Cethosia cyanecyane</i> Drury 1770 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 31 | <i>Childrena childreni</i> Gray 1831 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| 32 | <i>Cirrochroa aoris</i> Doubleday 1847 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 33 | <i>Phalanta phalantha</i> Drury 1773 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 34 | <i>Vindula erota</i> Fabricius 1793 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| VII | Subfamily: Libytheinae | | | | | | | | | | | | | | | | | |
| 35 | <i>Libythea lepidota</i> Moore 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 36 | <i>Libythea myrrha</i> Fruhstorfer 1898 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| VIII | Subfamily: Limenitinae | | | | | | | | | | | | | | | | | |
| 37 | <i>Abrota ganga</i> Moore 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | VR |
| 38 | <i>Athyma selenophora</i> Kollar 1844 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 39 | <i>Athyma camacama</i> Moore 1858 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 40 | <i>Athyma opalina</i> Kollar 1844 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 41 | <i>Athyma perisus</i> Linnaeus 1758 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 42 | <i>Athyma ranganga</i> Moore 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 43 | <i>Euthalia aconthea</i> Cramer 1777 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 44 | <i>Euthalia durga</i> Moore 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 45 | <i>Euthalia lubentina</i> Cramer 1777 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 46 | <i>Euthalia naranara</i> Moore 1859 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | VR |
| 47 | <i>Euthalia phemius</i> Doubleday 1848 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 48 | <i>Euthalia sahadeva</i> Moore 1859 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| 49 | <i>Euthalia telchinia</i> Menetries 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 50 | <i>Modura procis</i> Cramer 1777 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 51 | <i>Neptis ananta</i> Moore 1858 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| 52 | <i>Neptis clina</i> Moore 1872 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 53 | <i>Neptis shyla</i> Linnaeus 1758 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 54 | <i>Neptis mia</i> Moore 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 55 | <i>Neptis pseudovikas</i> Moore 1899 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 56 | <i>Neptis sankara</i> Kollar 1844 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| 57 | <i>Neptis sappho</i> Moore 1872 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 58 | <i>Neptis soma</i> Moore 1858 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 59 | <i>Pantoporia hordonia</i> Stoll 1790 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 60 | <i>Pantoporia sandakadavsoni</i> Eliot 1969 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 61 | <i>Parasarpazayla</i> Doubleday 1848 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| 62 | <i>Sumalia daraxa</i> Doubleday 1848 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| 63 | <i>Sumalia zulema</i> Doubleday 1848 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| 64 | <i>Tanaecia julla</i> Menetries 1857 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |
| IX | Subfamily: Morphinae | | | | | | | | | | | | | | | | | |
| 65 | <i>Aemonia mathusia</i> | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | R |
| X | Subfamily: Nymphalinae | | | | | | | | | | | | | | | | | |
| 66 | <i>Aglaia cashmirensis</i> Fruhstorfer 1912 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 67 | <i>Dolichoclis saltide</i> Moore 1899 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | C |
| 68 | <i>Hypolimnas bolina</i> Linnaeus 1758 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | UC |

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| 69 | <i>Hypolimnasmisipius</i> Linnaeus 1764 | | | | + | + | | | + | | + | + | | | | + | ¥ | UC |
| 70 | <i>Junonia almana</i> Linnaeus 1758 | + | + | + | + | + | + | + | + | + | + | + | + | | | + | | C |
| 71 | <i>Junonia atlites</i> Linnaeus 1763 | + | + | + | + | + | + | | + | | + | + | + | + | | + | | C |
| 72 | <i>Junonia hierta</i> Fabricius 1798 | + | + | + | + | + | | + | + | + | + | + | | + | + | | | C |
| 73 | <i>Junonia iphita</i> Cramer 1779 | + | + | + | + | + | + | + | + | + | + | + | | | | + | + | C |
| 74 | <i>Junonia lemonias</i> Linnaeus 1758 | + | + | + | + | + | | + | + | | + | + | + | + | + | + | | C |
| 75 | <i>Junonia orithya</i> Hubner 1819 | + | + | + | + | + | + | + | + | + | + | + | | + | | + | | C |
| 76 | <i>Kallima inachus</i> Boisduval 1836 | | + | + | + | + | + | + | | + | + | + | + | | | + | + | C |
| 77 | <i>Symbrenthia hypselis</i> Cramer 1874 | + | + | | + | + | + | | + | + | + | + | + | + | + | | + | C |
| 78 | <i>Symbrenthia illaekhasiana</i> Moore 1875 | | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | C |
| 79 | <i>Vanessa cardui</i> Linnaeus 1758 | + | + | + | + | + | + | + | + | + | + | + | | + | + | + | | C |
| 80 | <i>Vanessa indica</i> Herbst 1794 | | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | C |
| XI | Subfamily: Satyrinae | | | | | | | | | | | | | | | | | |
| 81 | <i>Auloceras wahaswaha</i> Kollar, 1844 | | | | | | | | | + | + | | | | | | | VR |
| 82 | <i>Callerebia scandaopima</i> Moore 1882 | | | | | | | | | | | | + | + | + | | ¥ | R |
| 83 | <i>Elymnias hypermnestra</i> Drury 1773 | | | + | + | + | + | | + | | + | + | | | | | | UC |
| 84 | <i>Elymnias malelas</i> Hewitson 1863 | | + | | | | | | | | | + | | | | | | VR |
| 85 | <i>Lethe chandica</i> Moore 1857 | | | + | | | + | | | | | + | | | | | | R |
| 86 | <i>Lethe confusa</i> Aurivillius 1898 | | + | | + | + | | + | + | | | + | + | + | | | + | UC |
| 87 | ? <i>Lethe distans</i> Butler | + | | | | | | | + | | | | | | | + | | R |
| 88 | <i>Lethe kansa</i> Moore 1857 | | | + | | | + | | | | | | | | | | | VR |
| 89 | <i>Lethe mekaramekara</i> Moore 1857 | | + | | + | + | | + | + | | | | + | | | + | + | UC |
| 90 | <i>Lethe rhoriar</i> Fabricius 1787 | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | C |
| 91 | <i>Lethe sinorix</i> Hewitson 1863 | | + | + | | | + | + | | | | | | | | + | + | ¥ UC |
| 92 | <i>Lethe vermasintica</i> Fruhstorfer 1911 | + | + | + | + | + | + | + | + | + | + | + | + | | | | | C |
| 93 | <i>Melanitis leda</i> Cramer 1775 | | + | | + | + | | + | | + | + | | + | + | + | | | UC |
| 94 | <i>Melanitis phedima</i> Moore 1857 | | + | | + | + | | + | + | | + | + | + | + | | | | UC |
| 95 | <i>Melanitis zitenius</i> Herbst 1796 | | | | + | + | | | | | | | | | | + | ¥ | R |
| 96 | <i>Mycalesis franciscana</i> Moore 1857 | | + | + | + | + | + | + | | | | + | + | | + | + | | UC |
| 97 | ? <i>Mycalesis her</i> Moore 1857 | | + | | | | + | | | | | + | | | | | ¥ | R |
| 98 | <i>Mycalesis perseus</i> Fabricius 1798 | | + | | + | + | | + | | + | + | | | + | + | + | | UC |
| 99 | <i>Mycalesis visalavisala</i> Moore 1857 | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | | C |
| 100 | <i>Orinomada maris</i> Gray 1846 | | + | | | | | | | | + | | | | | | | VR |
| 101 | <i>Orsotrioena medus</i> Fabricius 1775 | | | + | + | + | + | | + | | | + | | + | | | | UC |
| 102 | <i>Ypthima asterope</i> Klug, 1832 | | + | | + | + | | + | | + | + | | + | + | + | + | | UC |
| 103 | <i>Ypthima baldus</i> Fabricius 1775 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | C |
| 104 | <i>Ypthima narede</i> Kollar, 1844 | + | | + | + | | + | | + | + | + | | + | | | + | + | UC |
| 105 | <i>Ypthima newara</i> Elwes & Edwards 1893 | + | | | + | | | + | + | + | + | | | | | + | | UC |
| 106 | <i>Ypthima sakrasakra</i> Moore 1858 | | + | | + | | | + | + | | + | + | + | | + | | | UC |
| B | Family: Papilionidae | | | | | | | | | | | | | | | | | |
| XII | Subfamily: Papilioninae | | | | | | | | | | | | | | | | | |
| 107 | <i>Byasa polyeuctes</i> (Doubleday, 1842) | | + | + | + | | + | | + | + | + | | + | | + | + | | UC |
| 108 | <i>Graphium agamemnon</i> (Linnaeus, 1758) | + | | | + | + | | | + | + | + | + | | + | | | + | UC |
| 109 | <i>Graphium antiphates</i> (Fabricius, 1787) | + | | + | + | + | + | | + | + | + | + | + | | + | + | + | C |
| 110 | <i>Graphium cloanthus</i> (Westwood, 1841) | + | | + | | | + | | + | | | | | + | | | + | UC |
| 111 | <i>Graphium dosonaxionides</i> (Page & Treadaway, 2014) | | | + | + | + | + | | + | | + | + | | | | | | UC |

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| 155 | <i>Prioneristhystylis</i> (Doubleday, 1842) | + | + | | + | + | + | + | | + | | | | | | + | UC |
| 156 | <i>Pareroniavaleriahippa</i> (Fabricius, 1787) | | | + | + | + | + | | + | | + | + | | | | | UC |
| D | Family: Lycaenidae | | | | | | | | | | | | | | | | |
| XV | Subfamily: Curetinae | | | | | | | | | | | | | | | | |
| 157 | <i>Curetisbulisbulis</i> (Westwood, 1851) | | | + | + | + | + | | | | | | | | | + | UC |
| XVI | Subfamily: Lycaeninae | | | | | | | | | | | | | | | | |
| 158 | ? <i>Heliophorus brahma brahma</i> (Moore, [1857]) | | | + | | | + | | | | | | | | | + | R |
| 159 | <i>Heliophorusepicles</i> (Godart, [1824]) | + | + | + | + | + | + | + | | | + | + | + | + | + | + | C |
| XVII | Subfamily: Miletinae | | | | | | | | | | | | | | | | |
| 160 | ? <i>Allotinus drumiladrumila</i> (Moore, 1865) | | + | | | | | + | | | | + | | | | + | † R |
| 161 | ? <i>Miletuschinensisassamensis</i> (Doherty, 1891) | | + | | | | | + | | + | | + | | | | + | UC |
| XVIII | Subfamily: Polyommatae | | | | | | | | | | | | | | | | |
| 162 | <i>Acytolepisuspapigas</i> (Fruhstorfer, 1910) | | + | + | + | + | + | + | | + | + | + | | | | + | C |
| 163 | <i>Caletaenanolitea</i> (Fruhstorfer, 1918) | + | | | + | + | | | + | + | | + | | | | + | UC |
| 164 | <i>Castaliusrosimonrosimon</i> (Fabricius, 1775) | | + | + | + | + | + | + | | + | + | + | + | + | + | + | † C |
| 165 | <i>Catochrysopsnormus</i> (C & R Felder, 1860) | | | + | + | + | + | | + | + | + | + | | | | | UC |
| 166 | <i>Catochrysopsstrabo</i> (Fabricius, 1793) | | | + | | | + | | | | | | | | | + | VR |
| 167 | <i>Celastrinaargiolusjynteana</i> (de Niceville, 1883) | | + | + | + | + | + | + | | | + | | | | | | UC |
| 168 | ? <i>Celastrinahuegelioreoides</i> (Evans, 1925) | | | + | | | + | + | | | | | | | | | R |
| 169 | <i>Celastrinalavendularislimbata</i> (Moore, 1879) | | | + | + | + | + | | + | | + | + | | | | | UC |
| 170 | <i>Celatoxiarmarginata</i> (de Niceville, 1884) | | + | + | | | + | + | | + | | + | + | | | | UC |
| 171 | <i>Jamidesalecto</i> (C & R Felder, 1860) | | + | | + | + | | + | + | | + | + | + | + | | + | UC |
| 172 | <i>Jamidesbochusbochus</i> (Stoll, [1782]) | + | + | | + | + | | + | + | + | + | + | + | | | + | C |
| 173 | <i>Lampidesboeticus</i> (Linnaeus, 1767) | | + | + | + | + | + | + | | + | + | + | + | + | + | + | C |
| 174 | <i>Leptotesplinius</i> (Fabricius, 1793) | | + | + | + | + | + | + | | + | + | + | | + | + | + | C |
| 175 | <i>Megisbamalayassikkima</i> (Moore, 1884) | | | + | + | + | + | | + | | + | | + | | | | UC |
| 176 | <i>Orthomiellapontis</i> (Elwes, 1887) | | | | + | | | | + | | + | + | | | | + | ¥ UC |
| 177 | <i>Petrelaea dana</i> (de Niceville, [1883]) | + | | + | | | + | + | | + | + | | + | | | + | UC |
| 178 | <i>Prosotas dubiosaindica</i> (Evans, [1925]) | | | + | + | + | + | | + | | + | + | | | | | UC |
| 179 | <i>Prosotasnora</i> (C. Felder, 1860) | | + | | | | | | | | | + | + | | + | + | UC |
| 180 | <i>Pseudozeeria mahamaha</i> (Kollar, [1884]) | + | + | + | + | + | + | + | | + | | + | + | + | + | + | C |
| 181 | <i>Taraka hamada</i> (Druce, 1875) | | | | + | | | | + | | + | + | | | | | R |
| 182 | <i>Udaradilecta</i> (Moore, 1879) | | + | | | | | + | | | | + | | | | | R |
| 183 | <i>Zizeeria karsandra</i> (Moore, 1865) | + | + | | + | + | | | + | + | + | + | | | | | UC |
| XIX | Subfamily: Theclinae | | | | | | | | | | | | | | | | |
| 184 | <i>Arhopalabazalus</i> (Hewitson, 1862) | + | | + | | | + | | | + | | | | | | + | UC |
| 185 | <i>Arhopalaeumolpuseumolpuse</i> (Cramer, [1780]) | | | + | | | + | | | | | | + | | + | | R |
| 186 | <i>Arhopalaramarama</i> (Kollar, [1842]) | | | | + | + | | | + | | + | + | | | | | UC |
| 187 | <i>Rapalanissaratna</i> (Swinhoe, 1897) | + | + | + | + | | | + | + | + | + | | + | + | | + | C |
| 188 | <i>Catapacilma major major</i> (Druce, 1895) | | + | | + | + | | + | + | + | | + | | | | | R |
| 189 | <i>Chiladeslajuslajus</i> (Stoll, [1780]) | | + | | + | + | | + | + | | + | + | + | | + | + | UC |
| 190 | <i>Chiladesparrhasius</i> (Fabricius, 1793) | | | | + | | | + | | + | + | | + | + | + | | UC |
| 191 | <i>Chliaria kina kina</i> (Hewitson, 1869) | + | | | + | | | + | + | + | + | | | | | ¥ | UC |
| 192 | <i>Deudorixepijarbasamatius</i> (Fruhstorfer, 1912) | | | + | + | + | + | | + | | + | + | | | + | † | UC |
| 193 | <i>Horoga onyx onyx</i> (Moore, 1857) | | + | | | | | | | | | | | | | ¥ | VR |
| 194 | <i>Iraotatimoleon</i> (Stoll, [1790]) | | | | | + | + | | | + | | | | | | | R |

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| 195 | <i>Motamassyla</i> (Hewitson, 1869) | | + | | | | | | | | | | | | | | | | VR |
| 196 | <i>Rapalavaruna</i> (Horsfield, [1829]) | | | | | | | + | | + | + | | | | | | | ¥ | R |
| 197 | <i>Remelanajangalaravata</i> (Moore,[1865]) | | + | + | + | + | + | + | + | | + | + | + | + | | | + | | C |
| 198 | <i>Spindasislohitahimalayanus</i> (Moore, 1884) | | + | | + | + | | + | + | | + | + | + | | | | + | ¥ | UC |
| 199 | <i>Ticherraacte</i> (Moore,[1857]) | | + | + | | | + | + | | | | | + | | | | | | UC |
| 200 | <i>Zeltusamasa</i> (Hewitson, 1865) | | | + | + | + | + | | + | | + | + | | + | + | + | + | | C |
| XX | Subfamily: Riondininae | | | | | | | | | | | | | | | | | | |
| 201 | <i>Abisara chela chelade</i> Niceville 1886 | | + | | + | + | | | + | | + | + | + | | | | + | | UC |
| 202 | <i>Abisarafylla</i> Westwood 1851 | | + | + | + | + | + | + | | + | + | | + | + | + | + | + | | C |
| 203 | <i>Abisaraneophronneophron</i> Hewitson 1861 | | | + | + | + | + | | | | | | | | | | | | R |
| 204 | <i>Stibogesnymphidia</i> Butler 1876 | | + | | | | | + | | | | | + | | | | + | | R |
| 205 | <i>Zemerosflegyasindicus</i> Cramer 1780 | | + | + | + | + | + | + | + | + | + | + | + | | + | | + | | C |
| E | Family: Hesperidae | | | | | | | | | | | | | | | | | | |
| XXI | Subfamily: Pyrginae | | | | | | | | | | | | | | | | | | |
| 206 | <i>Chamundachamunda</i> Moore 1865 | | + | + | | | | | | | | | | | | | | | VR |
| 207 | <i>Coladeniaindraniindrani</i> Moore 1865 | | | + | + | + | + | | + | | + | + | | | | | + | | UC |
| 208 | <i>Pseudocoladeniadan faith</i> Evans, 1949 | | + | + | | + | + | | + | + | + | | + | + | + | | + | + | C |
| 209 | <i>Spialia galba</i> Fabricius, 1793 | | | + | | | + | | | | | | | | | | | | |
| 210 | <i>Tagaidesparra gala</i> Evans 1949 | | + | | + | + | | + | | + | + | + | + | | | | | | UC |
| 211 | <i>Tagiadeslitigiosalitigiosa</i> Moschler 1878 | | + | + | | | + | + | | | | | + | + | | | + | + | UC |
| 212 | <i>Tagiadesmenaka</i> Moore, 1865 | | + | | + | + | | + | + | | + | + | + | | | | | | UC |
| XXII | Subfamily: Heteropterinae | | | | | | | | | | | | | | | | | | |
| 213 | <i>Aeromachusstigmatus</i> Moore, 1878 | | | + | + | + | + | + | + | + | + | + | + | | | | + | | C |
| 214 | <i>Borbobevan</i> Moore, 1878 | | + | | + | | + | + | | + | | | | | | | + | | UC |
| 215 | <i>Borbocinnara</i> Wallace, 1866 | | | + | | | + | | | + | | | | | + | | + | | UC |
| 216 | ? <i>Halpearcuata</i> Evans 1937 | | | | + | + | | | + | + | + | + | | | | | | | UC |
| 217 | <i>Halpehomoleafilda</i> Evans 1948 | | | + | | | + | | | | | | | | + | | + | ¥ | R |
| 218 | <i>Matapasasivarna</i> Moore, 1865 | | + | | | + | | + | | | | | + | | | | + | | UC |
| 219 | <i>Notocryptacurvifascia</i> C& R Felder 1862 | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | | C |
| 220 | <i>Notocryptafeisthameli</i> Boisduval, 1832 | | | + | | | + | | | | | | | | | | | | VR |
| 221 | <i>Notocryptaparalysosawawa</i> Fruhstorfer 1911 | | + | | + | + | | + | + | | + | + | + | | | | | | UC |
| 222 | <i>Udaspesfolus</i> Cramer 1775 | | + | + | + | + | + | + | | + | + | + | + | + | | + | + | + | C |
| XXIII | Subfamily: Hesperinae | | | | | | | | | | | | | | | | | | |
| 223 | <i>Iambrixsalsalasala</i> (Moore, [1866]) | | + | + | + | + | + | + | | + | + | + | + | + | | + | + | + | C |
| 224 | <i>Ampitiadioscorides</i> (Fabricius, 1793) | | | + | | | + | | | + | | | | + | | | | | R |
| 225 | <i>Astictopterusjamaolivascens</i> Moore 1878 | | | | + | + | | + | + | | + | + | + | + | + | | | | UC |
| 226 | <i>Caltoriscahira</i> Moore 1877 | | | | + | + | | | + | | + | + | | + | | | | | UC |
| 227 | <i>Hyarotisadrastusparba</i> Moore, 1865 | | | + | + | + | + | | + | | + | + | | | | | | | UC |
| 228 | <i>Oriensgolapseudolus</i> Mabille 1881 | | + | + | + | + | | + | + | | | + | + | + | | + | | | UC |
| 229 | <i>Oriensgoloides</i> Moore, 1881 | | + | + | + | + | + | + | + | + | + | + | + | + | + | | + | | C |
| 230 | <i>Pelopidas assamensis</i> de Nicéville, 1882 | | | + | + | | | | | | | | | | | | + | + | R |
| 231 | <i>Pelopidas conjuncta</i> Herrich-Schaffer 1869 | | | + | | | + | | | | + | | | + | | | | | R |
| 232 | <i>Pelopidas mathias</i> Fabricius, 1798 | | + | + | + | | + | | + | + | | + | | + | + | | + | | UC |
| 233 | <i>Pelopidas sinensis</i> Mabile, 1877 | | | + | | | + | | | + | | | | | | | + | | R |
| 234 | <i>Pelopidas subochraceussubochraceus</i> Moore, 1878 | | | | + | + | | + | + | | + | + | + | | | + | | | UC |
| 235 | <i>Polytremisdiscreta</i> Elwes& Edwards, 1897 | | | + | | | + | + | | | | | + | | | | | | R |

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| 236 | <i>Potanthusdara</i> Kollar, 1842 | | + | | + | + | | + | + | | + | + | + | + | + | + | + | C |
| 237 | <i>Potanthusnestanesta</i> Evans, 1934 | | + | + | + | + | | + | + | | + | | + | | | + | + | UC |
| 238 | <i>Potanthuspseudomaesacleo</i> Evans 1932 | + | + | + | | + | | + | + | + | | | + | | | + | + | UC |
| 239 | <i>Potanthustrachala</i> Mabille 1878 | | | + | | | + | | | | + | | | | + | | + | UC |
| 240 | <i>Telicotabambusaebambusa</i> Moore, 1878 | | + | + | | | + | + | | | | | + | | | | + | UC |
| 241 | <i>Telicota colon colon</i> Fabricius, 1775 | + | | + | + | | + | + | | + | | + | | + | + | + | | UC |

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